

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. – 30 (Cancelled)

31. (Currently Amended) A method, comprising:

exciting a gain medium having an active region to generate an optical beam along an optical path;

feeding back a portion of the optical beam as a feedback optical beam to the active region;

~~dithering~~ ~~deviating a nominal~~ an operating setting of an optical element positioned in the optical path about a nominal value of the operating setting to generate a wavelength ~~deviation~~ dither of the feedback optical beam, the wavelength ~~deviation~~ dither of the feedback optical beam to induce a voltage ~~change~~ modulation across the active region of the gain medium;

sensing the voltage ~~change~~ modulation across the active region of the gain medium;

generating an error signal in response to the sensed voltage ~~change~~ modulation;
and

adjusting the nominal value of the operating setting of the optical element in response to the error signal to tune the optical element.

32. (Previously Presented) The method of claim 31 wherein the gain medium comprises a semiconductor gain medium.

33. (Cancelled)

34. (Previously Presented) The method of claim 32 wherein deviating the nominal operating setting of the optical element includes deviating a nominal operating position of the optical element.

35. (Currently Amended) The method of claim 32 wherein ~~deviating~~ dithering the nominal value of the operating setting of the optical element includes ~~deviating~~ dithering a nominal index of refraction of the optical element.

36. (Currently Amended) The method of claim 32 wherein ~~deviating~~ dithering the nominal value of the operating setting of the optical element includes ~~deviating~~ dithering a nominal voltage applied to the optical element.

37. (Currently Amended) The method of claim 32 wherein ~~deviating~~ dithering the nominal value of the operating setting of the optical element includes ~~deviating~~ dithering a nominal temperature of the optical element.

38. (Previously Presented) The method of claim 32 wherein the optical element is one of an end mirror of the cavity, a grid generator, and a channel selector.

39. (Currently Amended) The method of claim 32 wherein adjusting the nominal value of the operating setting includes adjusting the nominal value of the operating setting to reduce a voltage sensed across the gain medium.

40. (Currently Amended) The method of claim 31, further comprising:
dithering ~~deviating~~ a plurality of nominal values of the operating settings of a corresponding plurality of optical elements of the cavity to induce the voltage ~~change~~ modulation across the gain medium; and

adjusting the plurality of nominal values of the operating settings of the corresponding plurality of optical elements in response to the sensed voltage to tune the plurality of optical elements.

41. (Currently Amended) The method of claim 40 wherein the plurality of nominal values of the operating settings are ~~deviated~~ dithered and adjusted sequentially.

42. (Currently Amended) The method of claim 40 wherein the plurality of nominal values of the operating settings are ~~deviated~~ dithered and adjusted simultaneously.

43. (Currently Amended) A laser apparatus, comprising:
a gain medium having an active region to emit an optical beam along an optical path;
first and second reflectors positioned in the optical path and defining a laser cavity, the first reflector to reflect a portion of the optical beam as a feedback optical beam to the active region;
a voltage sensor operatively coupled to the gain medium to monitor voltage across the active region;
an optical element positioned in the optical path to induce a wavelength ~~deviation~~ dither in the feedback optical beam, the wavelength ~~deviation~~ dither of the feedback optical beam to induce a voltage ~~change~~ modulation across the active region; and
a control system operatively coupled to the voltage sensor and to the optical element, the control system to ~~deviate a nominal~~ dither an operating setting of the optical element about a nominal value of the operating setting to induce the wavelength ~~deviation~~ dither, the control system further to adjust the nominal value of the operating setting in response to the voltage ~~change~~ modulation to tune the optical element.

44. (Cancelled)

45. (Currently Amended) The laser apparatus of claim ~~[[44]]~~43 wherein the control system comprises:
a dither element to dither the ~~nominal~~ operating setting of the optical element;
and
an adjustment element to adjust the nominal value of the operating setting of the optical element.

46. (Currently Amended) The laser apparatus of claim ~~[[44]]~~43, further comprising:

a plurality of optical elements positioned in the optical path having a corresponding plurality of ~~nominal~~ operating settings, the control system operatively coupled to each of the plurality of optical elements to ~~deviate~~ dither the corresponding plurality of ~~nominal~~ operating settings about nominal values to induce the voltage ~~change~~ modulation across the gain medium and to adjust the nominal values of the plurality of ~~nominal~~ operating settings in response to the voltage ~~change~~ modulation to tune the plurality of optical elements.

47. (Currently Amended) The laser apparatus of claim 46 wherein the control system to ~~deviate~~ dither and to adjust the nominal values of the plurality of ~~nominal~~ operating settings sequentially.

48. (Currently Amended) The laser apparatus of claim 46 wherein the control system to ~~deviate~~ dither and to adjust the nominal values of the plurality of ~~nominal~~ operating settings simultaneously.

49. (Previously Presented) The laser apparatus of claim 43 wherein the optical element comprises the first reflector.

50. (Previously Presented) The laser apparatus of claim 43 wherein the optical element comprises one of a grid generator, a channel selector, and an electro-optic tuning element.

51. (Currently Amended) The laser apparatus of claim 43 wherein the nominal value of the operating setting includes one of a nominal operating position of the optical element, a nominal voltage applied to the optical element, and a nominal temperature of the optical element.

52. – 54 (Cancelled)

55. (Previously Presented) The laser apparatus of claim 43 wherein the second reflector comprises a partially reflective facet formed on the gain medium.

56. (Currently Amended) An apparatus, comprising:
means for generating an optical beam along an optical path;
means for feeding back a portion of the optical beam as a feedback optical beam to the means for generating;
means for dithering ~~an nominal~~ operating setting of an optical element positioned in the optical path about a nominal value of the operating setting to generate a wavelength ~~deviation~~ dither of the feedback optical beam, the wavelength ~~deviation~~ dither of the feedback optical beam to induce a voltage change across the means for generating;
means for sensing the voltage change across the means for generating the optical beam;
means for generating an error signal in response to the sensed voltage change;
and
means for adjusting the nominal value of the operating setting of the optical element in response to the error signal to tune the optical element.

57. (Currently Amended) The apparatus of claim 56 wherein the means for ~~deviating~~ dithering the ~~nominal~~ operating setting about the nominal value comprises a means for ~~deviating~~ dithering a nominal operating position of the optical element to generate the wavelength ~~deviation~~ dither of the feedback optical beam, the optical element comprising an end reflector for feeding back the feedback optical beam.

58. (Currently Amended) The apparatus of claim 56 wherein the means for ~~deviating~~ dithering the ~~nominal~~ operating setting comprises a means for ~~deviating~~ dithering an index of refraction of the optical element about a nominal index of refraction to generate the wavelength ~~deviation~~ dither of the feedback optical beam.

59. (Currently Amended) The apparatus of claim 58 wherein the means for ~~deviating~~ dithering the index of refraction of the optical element comprises a means for ~~applying an adjustable~~ dithering a voltage applied across the optical element.

60. (Currently Amended) The apparatus of claim 58 wherein the means for ~~deviating~~ dithering the index of refraction of the optical element comprises a means for ~~deviating~~ dithering a temperature of the optical element.